Department of Toxic Substances Control

Alan C. Lloyd, Ph.D.
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700 Heinz Avenue, Suite 200
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Arnold Schwarzenegger
Governor

July 20, 2005

Mr. Thomas L. Macchiarella
Southwest Division Naval Facilities Engineering Command
Attn: Code 06CA.TM
1220 Pacific Highway
San Diego, CA 92132-5190

DRAFT FINAL FEASIBILITY REPORT, OU-1, IR SITES 6, 7, 8, and 16, ALAMEDA POINT, ALAMEDA, CALIFORNIA

Dear Mr. Macchiarella:

The Department of Toxic Substances Control (DTSC) has reviewed the above referenced Feasibility Study (FS) report dated June 15, 2005 and concluded that the FS is incomplete due to inadequately defined remediation goals. In the interest of moving the process forward, DTSC concurs with the U. S. Environmental Protection Agency (EPA) and California Regional Water Quality Control Board (RWQCB) that the above referenced sites should be allowed to proceed into the Proposed Plan/Record of Decision (PP/ROD) phase provided that:

- Remediation or cleanup goals are re-calculated or otherwise established in the Proposed Plan following the recommendations outlined in the attached memorandum prepared by the Geological Services Unit (GSU)

- All data gaps identified in the GSU memorandum are addressed to the satisfaction of DTSC prior to completion of the Remedial Design.

Should you have any questions, please do not hesitate to contact me at 510-540-3767 or mliao@dtsc.ca.gov.

Sincerely,

Marcia Y. Liao

Marcia Liao
Remedial Project Manager
Office of Military Facilities

Attachment

cc:

Greg Lorton, SWDiv
Glenna Clark, SWDiv
Anna-Marie Cook, EPA
Judy Huang, RWQCB
Elizabeth Johnson, City of Alameda
Peter Russell, Russell Resources
Jean Sweeney, RAB Co-Chair
Lea Loizos, Arc Ecology

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MEMORANDUM

TO: Marcia Liao, Project Manager
Office of Military Facilities
700 Heinz Avenue, Suite 200
Berkeley, California 94710

FROM: Michelle Dalrymple, PG Michelle Dalrymple
Engineering Geologist
Geologic Services Unit

REVIEWED BY: Stewart W. Black, PG
Senior Engineering Geologist
Geologic Services Unit

DATE: July 19, 2005

SUBJECT: **REVIEW OF THE DRAFT FINAL OU-1 FEASIBILITY STUDY REPORT FOR OPERABLE UNIT 1, SITES 6, 7, 8, AND 16, ALAMEDA POINT, ALAMEDA, CALIFORNIA, DATED JUNE 15, 2005**

ACTIVITY REQUESTED

Per your request the Northern California Geological Services Unit (GSU) has reviewed the *Draft Final Feasibility Study Report for Operable Unit 1, Sites 6, 7, 8, and 16, Alameda Point, Alameda, California* dated June 15, 2005. The draft final Feasibility Study (FS) was prepared by Tetra Tech EM Inc. (Tetra Tech) for the U.S. Department of the Navy (Navy), Naval Facilities Engineering Command, Southwest Division. GSU's review was focused on data gaps and on the the Navy's response to comments (RTCs) on the draft FS report contained in Appendix D of the draft final document. Activities performed for this review included reading the RTCs, reviewing portions of the draft final FS report that pertain to these comments, and evaluating the list of data gaps presented in the draft final FS report.

PROJECT SUMMARY

The FS was based on the results of the remedial investigation (RI) performed for Operable Unit (OU)-1 which includes Sites 6, 7, 8, and 16. As documented in the final RI report, data gaps including several concerns that are global in nature were identified in OU-1 by the BCT. Data gaps are areas of incomplete characterization and include site features such as oil-water separators, storm drains and sanitary sewers, as well as media of concern (soil and groundwater). Because the data gaps represent incomplete site characterization, the regulatory agencies agree that the risk assessments performed for the sites most likely underestimate the actual risks. The GSU has been informed that the BCT has agreed to move forward with the FS because remediation at each site is warranted.

Data gaps were identified at each of the OU-1 sites in the draft final FS report. GSU agrees with the data gaps identified in the draft final FS report and has identified additional data gaps based on the global concerns outlined in the BCT data gap list and information contained in the draft final RI and FS reports. Additional data gaps identified by GSU may be addressed by clarifying or reaffirming the remediation goals in the Proposed Plan (PP) phase or by performing additional analysis of existing data (such as for hydrogeology) or with additional sampling (such as for source investigation or plume delineation) in the Remedial Desin (RD) phase. The following is a summary of the additional data gaps and recommendation identified by GSU:

Site 6 Data Gaps and Recommendations:

1. Source areas

Most of the soil data from Site 6 was collected between 1991 and 1995. These data were collected prior to the promulgation of U.S. EPA Method 5035. Therefore, the reliability of the soil analytical data for volatile organic compounds (VOCs) at Site 6 is questionable.

GSU agrees that one probable source area for VOCs at Site 6 is the location of the former solvent dip tank and wash pad. Low concentrations of VOCs were detected in soil samples collected from this area to a depth of approximately 14 feet below ground surface (bgs). However, GSU does not agree that source characterization in this area is complete.

GSU agrees that another probable source area exists in the vicinity of the portable avionics laboratory. However, only a few soil samples were collected from this general area. VOCs were not detected in the soil sample collected from boring 071-Z11-006. A groundwater sample collected from this direct-push boring had the highest levels of tetrachloroethylene (PCE) and trichloroethylene (TCE) detected in groundwater at the site. GSU does not agree that source characterization in the vicinity the portable avionics laboratory is complete.

Recommendation

- **GSU requests additional soil sampling in the area immediately adjacent to and beneath OWS-041 and in the vicinity of the plume centered near the portable avionics laboratory.**

- **GSU also requests that the Navy demonstrate whether the following site features described in the RI were considered in the previous sampling conducted at Site 6 and if not, propose to incorporate the sampling of these areas into the data gap sampling:**

  - **Storm and sanitary sewers**
  - **Cracks and holes in concrete observed in Washdown (WD)-040**
  - **Tie downs in WD-040**
  - **Other possible locations of the portable avionics laboratory**

2. Hydrogeology

GSU considers a good understanding of site-specific hydrogeology to be a data gap at Site 6. The regional groundwater elevation maps from 2002 and 2003 are not sufficient to determine site-specific hydrogeologic conditions. A good understanding of site-specific hydrogeologic conditions is critical to the proper placement of additional monitoring wells that may be needed to address data gaps, and for remedial design. In addition to perimeter wells, monitoring wells must be placed in source areas in order to monitor plume movement and the effectiveness of selected remedial alternatives.

Recommendation

GSU requests that all historical water level data, including the quarterly groundwater monitoring data from the Basewide Groundwater Monitoring Program, is used to prepare water level hydrographs and site-specific groundwater elevation maps. Historical groundwater flow directions, hydraulic gradients, and groundwater flow velocities should be estimated from these data.

3. Remediation Goals

The indoor air modeling that was performed to evaluate clean up goals for groundwater were derived using the J&E model and site-specific parameters found in Attachment B of Appendix G of the RI. GSU questions the parameter that was used for vadose zone soil type which is indicated as "SL." The boring logs for Site 6 show that the vadose zone soil type is predominantly "SP."

Recommendation

To ensure the cleanup goals for groundwater are properly established, GSU requests that the J&E modeling be revised using "SP" to reflect site-specific vadose zone lithology. In addition, GSU requests that the input values for target indoor air concentrations be based on California Human Health Screening Levels (CHHSLs).

4. Future Land Use

In its response to GSU's General Comment No. 7, the Navy stated that the most likely exposure scenario was determined for Site 6 as commercial. However, the Reuse Plan Map (Figure 2-6 of the draft final FS) indicates that housing opportunities exist at this site.

Recommendation

GSU requests that the future use of Site 6 is considered residential and the remediation goals are established accordingly .

Site 7 Data Gaps and Recommendations:

1. Source Areas

It is the opinion of GSU that the delineation of arsenic in soil at Site 7 is not complete and remains a data gap. GSU agrees that sufficient sampling for metals was performed in the "soil debris area" at Site 7. However, outside the soil debris area, delineation of arsenic above background appears to be incomplete. Arsenic was detected above background in soil samples from borings M07A-05, S07-SSI-SS23, B07A-05, and B07A-07 which are outside the soil debris area. In addition, the industrial waste sewer system has not been investigated and remains a data gap. Industrial waste from OWS-459 presumably discharged directly to this system.

Recommendations

- **GSU requests data gap sampling to delineate elevated levels of arsenic in soil outside the soil debris area.**
- **GSU requests additional soil investigation in the area north of the former incinerator (Building 68-3) where elevated levels of copper and lead were found in soil.**

- **GSU requests that data gap sampling include investigation of the industrial waste sewer system at Site 7.**

2. Hydrogeology

GSU considers a good understanding of site-specific hydrogeology to be a data gap at Site 7. The regional groundwater elevation maps from 2002 and 2003 are not sufficient to determine site-specific hydrogeologic conditions. A good understanding of site-specific hydrogeologic conditions is critical to evaluate whether monitoring wells are adequately placed to monitor elevated levels of PAHs and metals that were found in groundwater during the RI and that are continuing to be monitored as part of the Basewide Groundwater Monitoring Program.

Recommendation

GSU requests that all historical water level data, including the quarterly groundwater monitoring data from the Basewide Groundwater Monitoring Program, is used to prepare water level hydrographs and site-specific groundwater elevation maps. Historical groundwater flow directions, hydraulic gradients, and groundwater flow velocities should be estimated from these data.

3. Remediation Goals

Remediation goals for metals in soil at Site 7 do not appear to be consistent with the 95 percentile of the background data set distribution as stated. The 95 percent upper confidence limit (UCL) concentration for arsenic in the "pink" area is 3.1 milligrams per kilogram (mg/kg), and for cadmium it is 0.42 mg/kg. In addition, it seems inconsistent that metals in the soil debris area are proposed to be remediated to the 95 percent UCL while metals above the background range outside the soil debris area are not being addressed.

Recommendation

GSU requests additional clarification regarding remediation goals proposed for metals in soil at Site 7.

Site 8 Data Gaps and Recommendations:

1. Source Areas

Most of the soil data from Site 8 was collected between 1991 and 1995. These data were collected prior to the promulgation of U.S. EPA Method 5035. Therefore, the reliability of the soil analytical data for VOCs at Site 8 is questionable.

It is the opinion of GSU that source characterization at Site 8 is not complete and remains a data gap. Benzene, naphthalene, and TCE have been detected above their respective screening levels in groundwater samples collected from Site 8. The source of these chemicals to groundwater has not been identified or characterized.

Recommendations

GSU questions the absence of identified source(s) of VOCs at Site 8 and requests data gap sampling in areas that are likely to have contributed VOCs to soil and groundwater such as:

- **WD-114**
- **Interior courtyard of Building 114**
- **Storm and sanitary sewers**
- **Industrial waste sewers**

2. Hydrogeology

GSU considers a good understanding of site-specific hydrogeology to be a data gap at Site 8. The regional groundwater elevation maps from 2002 and 2003 are not sufficient to determine site-specific hydrogeologic conditions. A good understanding of site-specific hydrogeologic conditions is critical to the proper placement of additional monitoring wells that may be needed to address data gaps. In addition to perimeter wells, monitoring wells must be placed in source areas in order to monitor plume movement and the effectiveness of selected remedial alternatives, if necessary.

Recommendation

GSU requests that all historical water level data, including the quarterly groundwater monitoring data from the Basewide Groundwater Monitoring Program, is used to prepare water level hydrographs and site-specific groundwater elevation maps. Historical groundwater flow directions, hydraulic gradients, and groundwater flow velocities should be estimated from these data.

3. Remediation Goals for Groundwater

GSU questions why remediation goals were not established for groundwater at Site 8. VOCs have been detected in groundwater samples at concentrations exceeding screening levels. The evaluation of indoor air risks was based on soil gas data from one sample collected at Site 8. This sample did not contain the primary constituents that are found in groundwater at Site 8 (benzene, naphthalene, and TCE). GSU questions the use of this sample and suggests that it would be more representative to use groundwater data from Site 8 to model indoor air risks.

Recommendation

GSU requests that groundwater data is used to evaluate the risks associated with VOCs in groundwater at Site 8. If risks are determined to be unacceptable, remediation goals for groundwater should be established. To ensure that cleanup goals for groundwater are properly established, GSU requests that the J&E modeling be revised using "SP" to reflect site-specific vadose zone lithology. In addition, GSU requests that the input values for target indoor air concentrations be based on California Human Health Screening Levels (CHHSLs).

4. Plume Delineation

Characterization of the lateral and vertical extent of groundwater contamination above screening levels is not complete for benzene, naphthalene, and TCE. Benzene and naphthalene have been found in groundwater at concentrations exceeding their screening levels on the northern, southern, and eastern site perimeters. Trace levels of benzene were also detected in groundwater samples collected as deep as 80 feet bgs in 1994. Levels of benzene have increased in northern and eastern perimeter wells indicating that the plume may be shifting.

Recommendations

GSU requests that data gap sampling include plume delineation to levels that are protective of human health based on the groundwater to indoor air pathway.

Site 16 Data Gaps and Recommendations:

1. Source areas

Most of the soil data from Site 16 was collected between 1990 and 1995. These data were collected prior to the promulgation of U.S. EPA Method 5035. Therefore, the reliability of the soil analytical data for VOCs at Site 16 is questionable.

It is the opinion of GSU that source characterization at Site 16 is not complete and remains a data gap. Based on soil data presented in the RI, PCE was detected at a concentration above the residential soil PRG in a sample collected from boring 149-SS-002 north of Building 608. The extent of PCE in soil at this location was not delineated.

Recommendations

- **GSU requests additional soil sampling in the area north of Building 608 to determine the extent of PCE in soil above PRGs and at levels that may be act as a continuing source to groundwater.**

- **GSU requests data gap sampling to determine the source of the dichlorobenzene plume.**

- **GSU requests that the storm drain and sanitary sewers be evaluated to determine whether or not data gap sampling should be performed to evaluate these potential sources.**

- **GSU requests clarification of the source of elevated lead to groundwater.**

2. Hydrogeology

GSU considers a good understanding of site-specific hydrogeology to be a data gap at Site 16. The regional groundwater elevation maps from 2002 and 2003 are not sufficient to determine site-specific hydrogeologic conditions. A good understanding of site-specific hydrogeologic conditions is critical to the proper placement of additional monitoring wells that may be needed to address data gaps, and for remedial design. In addition to perimeter wells, monitoring wells must be placed in source areas in order to monitor plume movement and the effectiveness of selected remedial alternatives.

Recommendation

GSU requests that all historical water level data, including the quarterly groundwater monitoring data from the Basewide Groundwater Monitoring Program, is used to prepare water level hydrographs and site-specific groundwater elevation maps. Historical groundwater flow directions, hydraulic gradients, and groundwater flow velocities should be estimated from these data.

3. Remediation Goals

The indoor air modeling that was performed to evaluate clean up goals for groundwater were derived using the J&E model and site-specific parameters found in Attachment B of Appendix G of the RI. GSU questions the parameter that was used for vadose zone soil type which is indicated as "SL." The boring logs for Site 16 show that the vadose zone soil type is predominantly "SP."

Recommendation

To ensure the cleanup goals for groundwater are properly established, GSU requests that the J&E modeling be revised using "SP" to reflect site-specific vadose zone lithology. In addition, GSU requests that the input values for target indoor air concentrations be based on CHHSLs.

4. Plume Delineation for Elevated Lead

Elevated lead concentrations have been detected sporadically in groundwater samples from monitoring well S08MJ-MW2. The extent of elevated lead has not been delineated.

Recommendation

GSU requests data gap sampling to delineate elevated levels of lead in groundwater north of Building 608. Remediation goals for lead should be provided.

If you have any questions, please feel free to contact me at (510) 540-3926 or via e-mail at mdalrymp@dtsc.ca.gov.